

NOTE**Kanaad-The First Propounder of Atomic Theory**

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Dalton enunciated his atomic theory in early nineteenth century.
Kanaad gave atomic theory about two thousand years ago.

Key Words: Kanaad, Atomic theory.

In older times, there were no sharp lines of demarcation between various disciplines of knowledge as to-day. One might be a philosopher as well as a scientist. For example, Sir Humphry Davy was a philosopher, a poet and a chemist; Newton was a mathematician as well as a physicist; Avogadro was a physicist as well as a chemist; Vishnugupta (Chaanakya) was a philosopher, a politician and a chemist and so on. The credit of discovery of 'Algebra' goes to the early physicians who were used to be popularly known as 'Algebraites'. Kanaad, born in India, thousands of years ago, was primarily a philosopher, but his contribution regarding the composition of matter is, to-day, the subject of study under the discipline of Chemistry. It may be stated at the outset that this atomic theory is the result of systematic and logical thoughts yet it may be said to stand in good comparison with some of the most recent and advanced scientific ideas of our own times, and to bear the stamp of high intellectual perfection and sublime intuition. It has been described in the monumental work named 'Vaisheshika Darshana' written by Kanaad, originally in Sanskrit language.

The distinguishing feature of the chemical theory of Vaisheshika is the theory of 'Anus' or atoms. According to Kanaad, atoms are indivisible and indestructible¹, though they cannot exist in free or uncombined state. As an aggregate in the combined state they are, however, transient.

Combination of atoms²: One atom unites with another under an inherent impulse to form a binary molecule or a compound of two atoms. The atoms possess 'Parispana' - an intrinsic vibratory or rotator motion. Atoms of the same 'Bhuta' - type of element uniting in pairs give rise to molecules with homogeneous qualities corresponding to the original quality of the atoms, provided that no chemical change under the action of heat corpuscles takes place. This is in agreement of our modern conception of the formation of binary molecules of elementary substances. The

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binary molecules then combine among themselves by group of three, four, five *etc.*, to produce larger aggregates in obedience to the moral law underlying the creation. This leads to the formation of binary, ternary and quaternary molecules *etc.* The variety of substances of the same 'bhuta' class is thus the configuration with the development of different specific qualities.

An elementary substance, thus produced by primary combination, may, however, undergo qualitative transformation under the influence of heat corpuscles. The process consists of the following changes in order: (a) Their decomposition into the original homogeneous atoms, (b) formation of the character of the atoms and (c) the re-union of the transformed atoms into different groups or arrangements with development of new characteristic properties.

Combination may also take place either between atoms of two or more substances belonging to the same 'bhuta' class or of those of different 'bhuta' classes. A classification of this basis giving the following order of compounds has been made: (i) Mono-'bhautic' compounds - These are the simplest *i.e.*, compounds formed by the union of homogeneous atoms of different substances which are isomeric of the same 'bhuta' class. (ii) Hetero-'bhautic' compounds-These may be bi- or poly-'bhautic' compounds formed by the union of heterogeneous atoms of substances belonging to the different 'bhuta' class.

The characteristic of Kanaad's atomic theory is the assumption of the atoms, in mutual interactions, as the indivisible ultimate particles of matter with eternal life. They are thus indestructible. Though eternal in themselves, they are, however, non-eternal life. They are thus indestructible. Though eternal in themselves, they are, however, non-eternal as aggregates. As aggregates they may be organic or inorganic. Atoms are also conceived of as spherical or ellipsoidal in shape. According to Kanaad, the variety of substances of the same 'bhuta' class, as well as mono and poly-'bhautic' compounds result from variation in the collection of atoms and configuration of molecules. Thus, a conception of the arrangement of atoms in space constitutes an essential part of Kanaad's theory of chemical combination.

So, the credit of propounding atomic theory goes to Kanaad (c. 1000 B.C.)³ instead of Dalton (1808 A.D.).

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